

GLM Regression (Q5L6)

55% (11/20)

- ✓ 1. Poisson distribution is specified by
- ☒ A 1 parameter
 - ☐ B 2 parameters
 - ☐ C 3 parameters
 - ☐ D Poisson distribution does not have parameters
 - ☐ E I do not know
- ✗ 2. The type of dependent variable in Poisson Regression is
- ☐ A Integer
 - ☐ B Count
 - ☐ C Ratio
 - ☐ D Interval
 - ☐ E I do not know
 - ☒ F Binary
- ✗ 3. Overdispersion in Poisson Regression occurs when
- ☐ A $\text{var}(Y|X) > \text{var}(Y)$
 - ☐ B $\text{var}(Y|X) > \text{mean}(Y|X)$
 - ☐ C Variance is decreasing
 - ☒ D I do not know
- ✓ 4. The model of Poisson Regression is
- ☒ A $\ln(\lambda) = e^{(xb)}$
 - ☐ B $\ln(y) = e^{(xb)}$
 - ☐ C $\ln(y) = e^{(xb)} / (1 + e^{(xb)})$
 - ☐ D $\ln(\lambda) = e^{(xb)} / (1 + e^{(xb)})$
 - ☐ E I do not know

- ✓ 5. We can estimate Poisson Regression in R using function
- ☐ A lm()
 - ☒ B glm()
 - ☐ C flm()
 - ☐ D poisson()
 - ☐ E I do not know
- ✗ 6. Which one of these is the measure for goodness of fit for Poisson Regression?(if any)
- ☐ A Ordinal R^2
 - ☒ B Chi-square
 - ☐ C I do not know
 - ☐ D There are not measure for it
 - ☐ E Pseudo R^2
- ✗ 7. Which one of these is the correct interpretation of the coefficient of Poisson Regression?
- ☐ A For a 1-unit increase in X, we expect a b1 unit increase in Y.
 - ☐ B For a 1-unit increase in X, we expect b1 percentage increase in Y.
 - ☒ C For a 1-percentage increase in X, we expect b1 percentage increase in Y.
 - ☐ D For a 1-percentage increase in X, we expect b1 unit increase in Y.
 - ☐ E I do not know
- ✓ 8. Count data is continuous
- ☐ A Yes
 - ☒ B No
 - ☐ C I do not know
- ✓ 9. The logistic model is estimated by way of
- ☐ A Ordinary least squares
 - ☒ B Maximum likelihood estimation
 - ☐ C Negative binomial distribution
 - ☐ D I do not know

- ✓ 10. **As a result of estimation of coefficients**
- ☒ A We do not have the formula, an iterative algorithm must be used
 - ☐ B The explicit formula of coefficients exists
 - ☐ C I do not know
 - ☐ D We can obtain different values for coefficients
- ✓ 11. **In Poisson regression...**
- ☒ A The asymptotic distribution of the maximum likelihood estimates is multivariate normal.
 - ☐ B The distribution of the maximum likelihood estimates is multivariate normal.
 - ☐ C The asymptotic distribution of the maximum likelihood estimates is multivariate Poisson distribution.
 - ☐ D I do not know
- ✗ 12. **Pseudo R-Squared Measures are calculated based on (if any)**
- ☐ A The likelihood function
 - ☐ B Row residuals
 - ☐ C Deviance
 - ☐ D Chi-squared value
 - ☒ E I do not know
- ✓ 13. **The formula for the raw residual is**
- ☒ A The difference between the actual response and the estimated value from the model
 - ☐ B The squared difference between the actual response and the estimated value from the model
 - ☐ C The difference between the actual response and the estimated value from the model by dividing by the standard deviation
 - ☐ D I do not know
- ✓ 14. **Which of these is NOT the type of residuals**
- ☐ A Deviance Residual
 - ☐ B Pearson Residual
 - ☐ C Raw Residual
 - ☒ D Poisson Residual
 - ☐ E I do not know

✗ 15. In the case of intercept-only model

- ☐ A The mean of the dependent variable equals the exponential value of intercept
- ☐ B The mean of the dependent variable equals the intercept
- ☒ C The mean of the dependent variable equals 0
- ☐ D I do not know

✗ 16. $\ln(\lambda) = 0.6 - 0.2 * \text{female}$ [λ = the average number of articles] Note: $e^{(-0.2)} = 0.78$

- ☐ A One unit increase in female brings a 0.2 decrease in $\ln(\lambda)$.
- ☒ B Being female decreases the average number of articles by 0.78 percent
- ☐ C Being female decreases the average number of articles by 22%
- ☐ D I do not know

✗ 17. While running the Poisson Regression we will have never faced with the value of λ

- ☐ A 0
- ☐ B 1
- ☐ C 2
- ☒ D I do not know

✗ 18. Why does not quasi-Poisson model have AIC?

- ☐ A Quasi-Poisson is used quasi-likelihood instead of log-likelihood estimates.
- ☐ B Quasi-Poisson does not use iterative estimation
- ☒ C I do not know

✓ 19. Why Poisson regression is called log-linear?

- ☒ A Because we use a log link to estimate the logarithm of the average value of the dependent variable
- ☐ B Because we use a log values of independent variable
- ☐ C Because we use a log value of an independent variable is transformed to linear
- ☐ D I do not know

✓ 20. Formulate the Null hypothesis for chi-squared and deviance test.

- ☐ A The distance between actual and predicted values is insignificant
- ☒ B The distance between actual and predicted values is 0
- ☐ C There is a significant difference between actual and predicted values.
- ☐ D I do not know